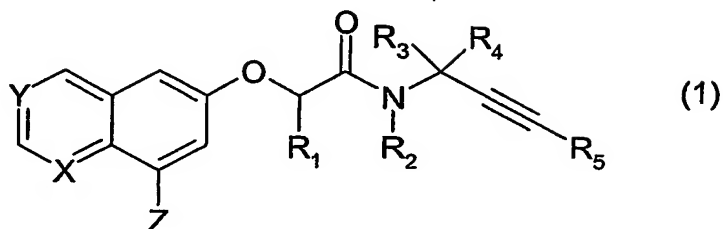


## CLAIMS

1. A compound of the general formula (1):



wherein one of X and Y is N or N-oxide and the other is CR or both of X and Y are N;

Z is H, halo, C<sub>1-6</sub> alkyl optionally substituted with halo or C<sub>1-4</sub> alkoxy, C<sub>3-6</sub> cycloalkyl optionally substituted with halo or C<sub>1-4</sub> alkoxy, C<sub>2-4</sub> alkenyl optionally substituted with halo, C<sub>2-4</sub> alkynyl optionally substituted with halo, C<sub>1-6</sub> alkoxy optionally substituted with halo or C<sub>1-4</sub> alkoxy, C<sub>2-4</sub> alkenyloxy optionally substituted with halo, C<sub>2-4</sub> alkynyloxy optionally substituted with halo, cyano, nitro, C<sub>1-4</sub> alkoxy carbonyl, -OSO<sub>2</sub>R', S(O)<sub>n</sub>R', -COR'', -CONR''', -CR''=NOR', NR''R''', NR''COR', NR''CO<sub>2</sub>R' where n is 0, 1 or 2, R' is C<sub>1-6</sub> alkyl optionally substituted with halogen and R'' and R''' are independently H or C<sub>1-6</sub> alkyl or, in the case of -CONR''', may join to form a 5- or 6-membered ring containing a single nitrogen atom, saturated carbon atoms and optionally a single oxygen atom; R is H, halo, C<sub>1-8</sub> alkyl, C<sub>3-6</sub> cycloalkyl, C<sub>2-8</sub> alkenyl, C<sub>2-8</sub> alkynyl, C<sub>1-8</sub> alkoxy, C<sub>1-8</sub> alkylthio, nitro, amino, mono- or di-(C<sub>1-6</sub>)alkylamino, mono- or di-(C<sub>2-6</sub>)alkenylamino, mono- or di-(C<sub>2-6</sub>)alkynylamino, formylamino, C<sub>1-4</sub> alkyl(formyl)amino, C<sub>1-4</sub> alkylcarbonylamino, C<sub>1-4</sub> alkoxy carbonylamino, C<sub>1-4</sub> alkyl(C<sub>1-4</sub> alkylcarbonyl)amino, cyano, formyl, C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkoxy carbonyl, amino carbonyl, mono- or di-(C<sub>1-4</sub>)alkylaminocarbonyl, carboxy, C<sub>1-4</sub> alkylcarbonyloxy, aryl(C<sub>1-4</sub>)alkylcarbonyloxy, C<sub>1-4</sub> alkylsulphinyl, C<sub>1-4</sub> alkylsulphonyl or C<sub>1-4</sub> alkylsulphonyloxy;

R<sub>1</sub> is C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl or C<sub>2-4</sub> alkynyl in which the alkyl, alkenyl and alkynyl groups are optionally substituted on their terminal carbon atom with one, two or three halogen atoms, with a cyano group, with a C<sub>1-4</sub> alkylcarbonyl group, with a C<sub>1-4</sub> alkoxy carbonyl group or with a hydroxy group, or R<sub>1</sub> is alkoxyalkyl, alkylthioalkyl, alkylsulphinylalkyl or alkylsulphonylalkyl in

which the total number of carbon atoms is 2 or 3, or

R<sub>1</sub> is a straight-chain C<sub>1-4</sub> alkoxy group;

R<sub>2</sub> is H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxymethyl or benzyloxymethyl in which the phenyl ring of the benzyl moiety is optionally substituted with C<sub>1-4</sub> alkoxy;

5 R<sub>3</sub> and R<sub>4</sub> are independently H, C<sub>1-3</sub> alkyl, C<sub>2-3</sub> alkenyl or C<sub>2-3</sub> alkynyl provided that both are not H and that when both are other than H their combined total of carbon atoms does not exceed 4, or

R<sub>3</sub> and R<sub>4</sub> join with the carbon atom to which they are attached to form a 3 or 4 membered carbocyclic ring optionally containing one O, S or N atom and  
10 optionally substituted with halo or C<sub>1-4</sub> alkyl; and

R<sub>5</sub> is H, C<sub>1-4</sub> alkyl or C<sub>3-6</sub> cycloalkyl in which the alkyl or cycloalkyl group is optionally substituted with halo, hydroxy, C<sub>1-6</sub> alkoxy, cyano, C<sub>1-4</sub> alkylcarbonyloxy, aminocarbonyloxy, mono- or di(C<sub>1-4</sub>)alkylaminocarbonyloxy, -S(O)<sub>n</sub>(C<sub>1-6</sub>)-alkyl where n is 0, 1 or 2, triazolyl (e.g. 1,2,4-triazol-1-yl), tri(C<sub>1-4</sub>)alkylsilyloxy,  
15 optionally substituted phenoxy, optionally substituted thienyloxy, optionally substituted benzyloxy or optionally substituted thienylmethoxy, or

R<sub>5</sub> is optionally substituted phenyl, optionally substituted thienyl or optionally substituted benzyl,

in which the optionally substituted phenyl and thienyl rings of the R<sub>5</sub> values are  
20 optionally substituted with one, two or three substituents selected from halo, hydroxy, mercapto, C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl, C<sub>2-4</sub> alkynyl, C<sub>1-4</sub> alkoxy, C<sub>2-4</sub> alkenyloxy, C<sub>2-4</sub> alkynyloxy, halo (C<sub>1-4</sub>)alkyl, halo(C<sub>1-4</sub>)alkoxy, C<sub>1-4</sub> alkylthio, halo(C<sub>1-4</sub>)alkylthio, hydroxy(C<sub>1-4</sub>)alkyl, C<sub>1-4</sub> alkoxy(C<sub>1-4</sub>)alkyl, C<sub>3-6</sub> cycloalkyl, C<sub>3-6</sub> cycloalkyl(C<sub>1-4</sub>)alkyl, phenoxy, benzyloxy, benzoyloxy, cyano, isocyano,  
25 thiocyanato, isothiocyanato, nitro, -NR<sup>m</sup>R<sup>n</sup>, -NHCOR<sup>m</sup>, -NHCONR<sup>m</sup>R<sup>n</sup>, -CONR<sup>m</sup>R<sup>n</sup>, -SO<sub>2</sub>R<sup>m</sup>, -OSO<sub>2</sub>R<sup>m</sup>, -COR<sup>m</sup>, -CR<sup>m</sup>=NR<sup>n</sup> or -N=CR<sup>m</sup>R<sup>n</sup>, in which R<sup>m</sup> and R<sup>n</sup> are independently hydrogen, C<sub>1-4</sub> alkyl, halo(C<sub>1-4</sub>)alkyl, C<sub>1-4</sub> alkoxy, halo-(C<sub>1-4</sub>)alkoxy, C<sub>1-4</sub> alkylthio, C<sub>3-6</sub> cycloalkyl, C<sub>3-6</sub> cycloalkyl(C<sub>1-4</sub>)alkyl, phenyl or benzyl, the phenyl and benzyl groups being optionally substituted with halogen,  
30 C<sub>1-4</sub> alkyl or C<sub>1-4</sub> alkoxy.

2. A compound according to claim 1 wherein R<sub>5</sub> is other than H.

3. A compound according to claim 1 or 2 wherein R is H or halo, cyano.
4. A compound according to any one of the preceding claims wherein R<sub>1</sub> is methyl,  
 5 ethyl, *n*-propyl, 2,2,2-trifluoromethyl, cyanomethyl, acetylmethyl,  
 methoxycarbonylmethyl, methoxycarbonylethyl, hydroxymethyl, hydroxyethyl,  
 methoxymethyl, methylthiomethyl, ethoxymethyl, 2-methoxyethyl, 2-methyl-  
 thioethyl, methoxy, ethoxy, *n*-propoxy or *n*-butoxy.
- 10 5. A compound according to any one of the preceding claims wherein R<sub>1</sub> is ethyl,  
 methoxy, ethoxy or methoxymethyl.
6. A compound according to any one of the preceding claims wherein R<sub>2</sub> is H.
- 15 7. A compound according to any one of the preceding claims wherein both R<sub>3</sub> and  
 R<sub>4</sub> are methyl.
8. A compound according to any one of the preceding claims wherein R<sub>5</sub> is H,  
 methyl, hydroxymethyl, methoxymethyl, 1-methoxyethyl, *tert*-butyldimethyl-  
 20 siloxymethyl, 3-cyanopropyl, 3-methoxypropyl, 3-(1,2,4-triazol-1-yl)propyl, 3-  
 methylthiopropyl, 3-methanesulphinylpropyl or 3-methanesulphonylpropyl.
9. A compound according to claim 1 wherein one of X and Y is N and the other is  
 CR or both of X and Y are N;  
 25 Z is H;  
 R is H, halo, C<sub>1-8</sub> alkyl, C<sub>3-6</sub> cycloalkyl, C<sub>2-8</sub> alkenyl, C<sub>2-8</sub> alkynyl, C<sub>1-8</sub> alkoxy,  
 C<sub>1-8</sub> alkylthio, nitro, amino, mono- or di-(C<sub>1-6</sub>)alkylamino, mono- or di-(C<sub>2-6</sub>)-  
 alkenylamino, mono- or di-(C<sub>2-6</sub>)alkynylamino, formylamino, C<sub>1-4</sub> alkyl(formyl)-  
 amino, C<sub>1-4</sub> alkylcarbonylamino, C<sub>1-4</sub> alkyl(C<sub>1-4</sub> alkylcarbonyl)amino, cyano,  
 30 formyl, C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkoxycarbonyl, aminocarbonyl, mono- or di-  
 (C<sub>1-4</sub>)alkylaminocarbonyl, carboxy, C<sub>1-4</sub> alkylcarbonyloxy, aryl(C<sub>1-4</sub>)alkyl-  
 carbonyloxy, C<sub>1-4</sub> alkylsulphinyl, C<sub>1-4</sub> alkylsulphonyl or C<sub>1-4</sub> alkylsulphonyloxy;

R<sub>1</sub> is C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl or C<sub>2-4</sub> alkynyl in which the alkyl, alkenyl and alkynyl groups are optionally substituted on their terminal carbon atom with one, two or three halogen atoms, with a cyano group, with a C<sub>1-4</sub> alkylcarbonyl group, with a C<sub>1-4</sub> alkoxy carbonyl group or with a hydroxy group, or

5 R<sub>1</sub> is alkoxyalkyl, alkylthioalkyl, alkylsulphinyalkyl or alkylsulphonylalkyl in which the total number of carbon atoms is 2 or 3, or R<sub>1</sub> is a straight-chain C<sub>1-4</sub> alkoxy group;

R<sub>2</sub> is H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy methyl or benzyloxy methyl in which the phenyl ring of the benzyl moiety is optionally substituted with C<sub>1-4</sub> alkoxy;

10 R<sub>3</sub> and R<sub>4</sub> are independently H, C<sub>1-3</sub> alkyl, C<sub>2-3</sub> alkenyl or C<sub>2-3</sub> alkynyl provided that both are not H and that when both are other than H their combined total of carbon atoms does not exceed 4, or

R<sub>3</sub> and R<sub>4</sub> join with the carbon atom to which they are attached to form a 3 or 4 membered carbocyclic ring optionally containing one O, S or N atom and  
15 optionally substituted with halo or C<sub>1-4</sub> alkyl; and

R<sub>5</sub> is H, C<sub>1-4</sub> alkyl or C<sub>3-6</sub> cycloalkyl in which the alkyl or cycloalkyl group is optionally substituted with halo, hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkylthio, cyano, C<sub>1-4</sub> alkylcarbonyloxy, aminocarbonyloxy or mono- or di(C<sub>1-4</sub>)alkylaminocarbonyloxy, tri(C<sub>1-4</sub>)alkyl-silyloxy, optionally substituted phenoxy, optionally substituted  
20 thienyloxy, optionally substituted benzyloxy or optionally substituted thienylmethoxy, or

R<sub>5</sub> is optionally substituted phenyl, optionally substituted thienyl or optionally substituted benzyl,

in which the optionally substituted phenyl and thienyl rings of the R<sub>5</sub> values are

25 optionally substituted with one, two or three substituents selected from halo, hydroxy, mercapto, C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl, C<sub>2-4</sub> alkynyl, C<sub>1-4</sub> alkoxy, C<sub>2-4</sub> alkenyloxy, C<sub>2-4</sub> alkynyloxy, halo (C<sub>1-4</sub>)alkyl, halo(C<sub>1-4</sub>)alkoxy, C<sub>1-4</sub> alkylthio, halo(C<sub>1-4</sub>)alkylthio, hydroxy(C<sub>1-4</sub>)alkyl, C<sub>1-4</sub>alkoxy(C<sub>1-4</sub>)alkyl, C<sub>3-6</sub> cycloalkyl, C<sub>3-6</sub> cycloalkyl(C<sub>1-4</sub>)alkyl, phenoxy, benzyloxy, benzoyloxy, cyano, isocyano, thio-  
30 cyanato, isothiocyanato, nitro, -NR<sup>m</sup>R<sup>n</sup>, -NHCOR<sup>m</sup>, -NHCONR<sup>m</sup>R<sup>n</sup>, -CONR<sup>m</sup>R<sup>n</sup>, -SO<sub>2</sub>R<sup>m</sup>, -OSO<sub>2</sub>R<sup>m</sup>, -COR<sup>m</sup>, -CR<sup>m</sup>=NR<sup>n</sup> or -N=CR<sup>m</sup>R<sup>n</sup>, in which R<sup>m</sup> and R<sup>n</sup> are independently hydrogen, C<sub>1-4</sub> alkyl, halo(C<sub>1-4</sub>)alkyl, C<sub>1-4</sub> alkoxy, halo(C<sub>1-4</sub>)alkoxy,

C<sub>1-4</sub> alkylthio, C<sub>3-6</sub> cycloalkyl, C<sub>3-6</sub> cycloalkyl(C<sub>1-4</sub>)alkyl, phenyl or benzyl, the phenyl and benzyl groups being optionally substituted with halogen, C<sub>1-4</sub> alkyl or C<sub>1-4</sub> alkoxy.

- 5 10. A compound according to claim 1 wherein one of X and Y is N and the other is CR or both of X and Y are N; Z is H; R is H, halo or cyano; R<sub>1</sub> methyl, ethyl, *n*-propyl, 2,2,2-trifluoromethyl, cyanomethyl, acetylmethyl, methoxycarbonylmethyl, methoxycarbonylethyl, hydroxymethyl, hydroxyethyl, methoxymethyl, methylthiomethyl, ethoxymethyl, 2-methoxyethyl, 2-methylthioethyl, methoxy, 10 ethoxy, *n*-propoxy or *n*-butoxy; R<sub>2</sub> is H; R<sub>3</sub> and R<sub>4</sub> are both methyl; and R<sub>5</sub> is H, methyl, hydroxymethyl, methoxymethyl, 1-methoxyethyl, *tert*-butyldimethylsiloxymethyl, 3-cyanopropyl, 3-methoxypropyl, 3-(1,2,4-triazol-1-yl)propyl, 3-methylthiopropyl, 3-methanesulphinylpropyl or 3-methanesulphonylpropyl.
- 15 11. A process for preparing a compound according to claim 1 as herein described.
12. A fungicidal composition comprising a fungicidally effective amount of a compound of formula (1) as claimed in claim 1 or 9 and a suitable carrier or diluent therefor.
- 20 13. A method of combating or controlling phytopathogenic fungi which comprises applying a fungicidally effective amount of a compound of formula (1) as defined in claim 1 or a composition according to claim 12 to a plant, to a seed of a plant, to the locus of the plant or seed or to soil or any other plant growth medium.
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